

# **Management measures for safety of workers and property and securing elephant corridor in TANTEA area, Valparai**

## **Report submitted by**

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## **Report submitted to:**

*Tamil Nadu Forest Department (Anamalai Tiger Reserve)*

*13 March 2011*



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### **Executive Summary**

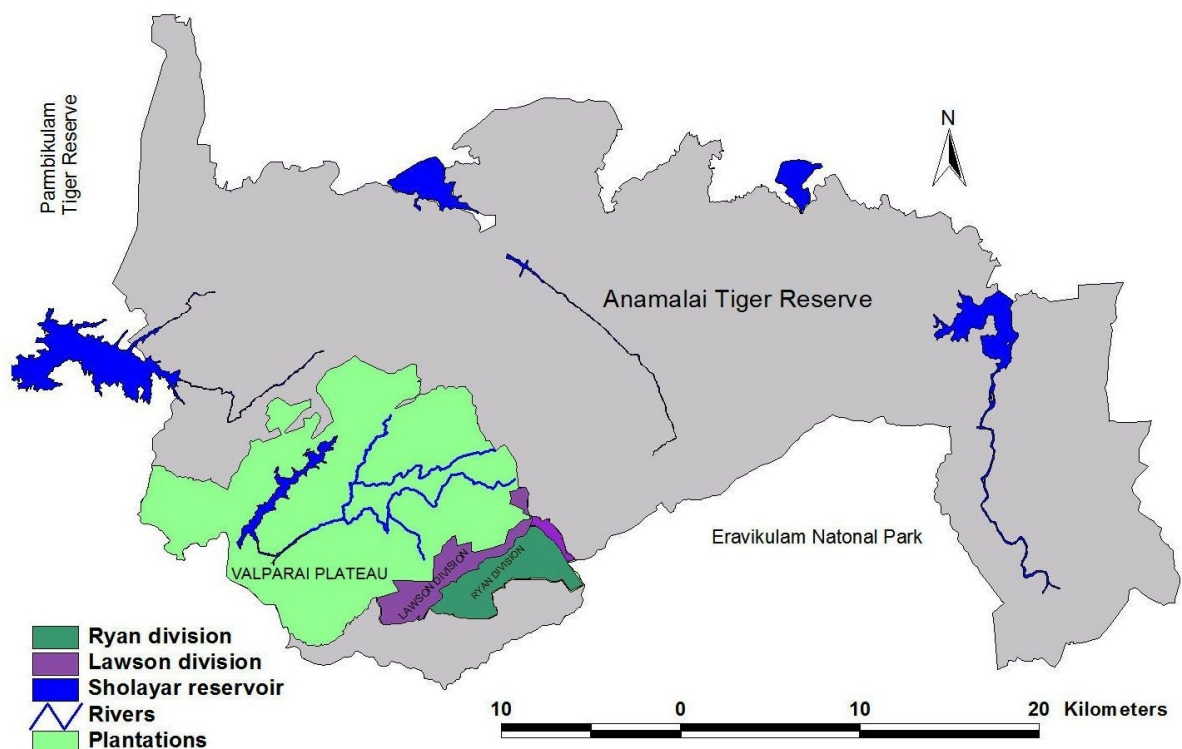
The Tamil Nadu Tea Plantation Corporation (TANTEA) area, particularly Ryan Division, has been a hot-bed of human-elephant conflict with 25% of human deaths (9 of 36 people between 1994 and 2011) in the Valparai plateau occurring in an area occupying less than 2% of the Valparai plantation landscape. There are also damages to property and immense difficulties faced by local people due to the remoteness of the fields and housing, many of which are unproductive or poorly located. **The TANTEA area, particularly Ryan Division and adjoining fields of Lawson Division in Chinnakallar area, are located as a wedge separating and fragmenting two crucial portions of the Anamalai Tiger Reserve, thereby disrupting an important elephant movement route in the landscape and triggering conflicts with people.**

For safety of human life and property, as well as safeguarding an elephant movement route and reducing conflict with elephants, there are several immediate and longer-term measures required. **Immediate measures** include relocation of people in remote colonies of Ryan Division to better housing along the main road in Lawson division, employment of elephant trackers, and creation of communication system to inform on elephant movement. **In the longer run, it is important to secure the Ryan Division area, which is currently fragmenting ATR and disrupting an important elephant movement route and incorporate the entire area within Anamalai Tiger Reserve.** This division may be incorporated into the Anamalai Tiger Reserve and workers appointed in Lawson division or to other TANTEA plantations.

### **Background: plantations and conservation on Valparai plateau**

The Valparai plateau is a vital conservation area in the Anamalai hills occupying a unique geographical location dominated by tea, coffee, and cardamom plantations interspersed with rainforest fragments and *Eucalyptus* fuel clearings (Mudappa and Raman 2007). The plantations on the plateau occupy around 220 sq km area, with nearly three-fourths being under tea cultivation, primarily with a few large companies (including Tamil Nadu Tea Plantation Corporation, TANTEA). The entire plateau is surrounded by protected areas Anamalai Tiger Reserves (TN), Parambikulam Tiger Reserve (Kerala), and wildlife sanctuaries and Reserved Forests in Kerala to the south and west (see **Map 1**).

Research carried out by the Nature Conservation Foundation in the region since 2002 on elephant movements and human-wildlife conflict has shown that due to undulating terrain of the plateau, it has been historically used and continues to be used by many wildlife species including Asian elephants (*Elephas maximus*) between surrounding protected areas (Kumar et al 2010). The rainforest fragments (around 40 fragments) and vegetation along rivers in the Valparai region are very important as refuges for elephants when they move between large tracts of plantations into surrounding protected areas and as playing a role in reducing human-wildlife encounters and conflict (Kumar *et al.* 2004, 2010)



Map 1: Anamalai Tiger Reserve (in grey) showing Ryan and Lawson Divisions of TANTEA.

### TANTEA area and history

The TANTEA area (erstwhile Cinchona Department) is located at the southeastern extremity of the Valparai plateau. As noted in the management plan, while part of the forest lands transferred from Cinchona Department were brought under *Eucalyptus grandis*, a large parcel of land was taken over by Tamil Nadu Tea Plantation Corporation (TANTEA) to gradually convert the Cinchona areas into tea. Out of an extent of 3601.58 ha held by Cinchona in 1990, an area of 2642.5 ha is under TANTEA lease with about 1085.5 ha of tea under two divisions: Lawson Division and Ryan Division. An area of 2642.5 ha. (Productive land – 1085.50 ha + Unproductive land – 1557.01 ha) is under TANTEA lease.

**The TANTEA areas are part of the core area of the Anamalai Tiger Reserve.** Earlier, when the said TANTEA areas were part of Indira Gandhi Wildlife Sanctuary, plucking of tea leaves continued on account of inevitable conditions relating to resettlement of the repatriates. In the G.O. Ms. No. 288, F&F dept. Dt. 10.10.1976, the erstwhile Coimbatore South Division was notified as Anamalai Wildlife Sanctuary. In G.O. Ms. No. 145, E&F (FR V) Dept. dated 28.12.2007, the entire extent of 958 sq km as notified in G.O. Ms. No. 288, F&F, dated 10.10.1976 as Wildlife Sanctuary and G. O. Ms. No. 58, E&F Dept. dated 23.1.1989 as National Park has been notified as Anamalai Tiger Reserve. The area in the erstwhile Cinchona Department which was amalgamated with the TANTEA (as per G.O. Ms. No. 671 E&F, dated 20.09.1990) comes under land leased by the Forest Department. **Hence, the entire TANTEA area is inclusive in the 958 sq km notified as Anamalai Tiger Reserve.**

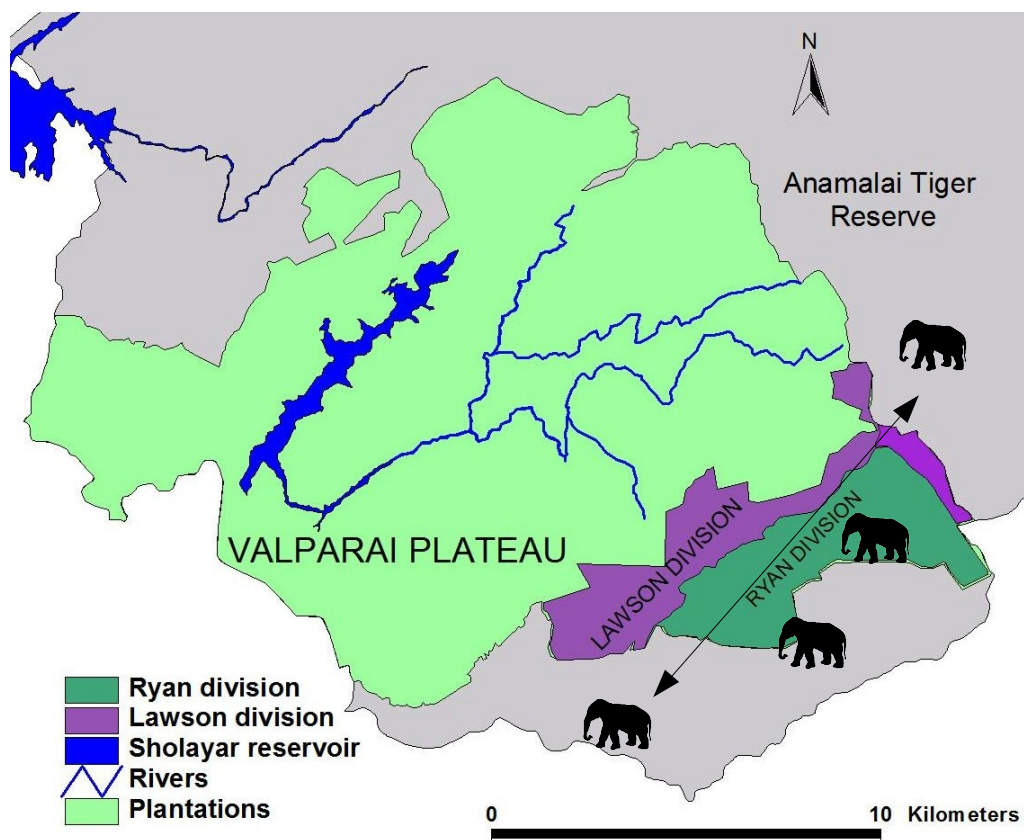


### Importance of TANTEA area for elephant movements

TANTEA (Tamil Nadu Tea) in the Valparai region is one of the critical areas for Asian elephants (*Elephas maximus*) on the Valparai plateau in the Anamalai hills.

A portion of TANTEA area occupies a crucial wedge of land breaking the connectivity of forest between two segments of the Anamalai Tiger Reserve (i.e., between Akkamalai area adjoining Chinnakallar and the forests of ATR to the south: see Map 2). In particular, Ryan Division and a few fields of Lawson division to the north and west of Upper Nirar Dam are located like a wedge breaking this connectivity in an area crucial for elephant movements and access to water (Poovar and Kallar rivers). The Kallar river runs through the centre of the TANTEA area separating Lawson and Ryan Divisions. A few fields on Lawson division (Field Nos. 34, 35, 36, and 37) in Chinnakallar area lie to the northeast of Ryan Division across the Poovar River.

The TANTEA has been intensively used by elephants to move between parts of Anamalai Tiger Reserve as well as into reserved forests of Kerala. The TANTEA has been frequented by 40 – 50 elephants which come into plantations as a part of their seasonal local migrations. Due to the critical location of TANTEA in the southern part of the Valparai plateau, some of the elephant herds from this part of the plantations move towards north and northeast part of the plateau into the Anamalai Tiger Reserve. Intensive movement of elephants in the TANTEA area peaks between October and March every year which indicates importance of critical place for elephants.



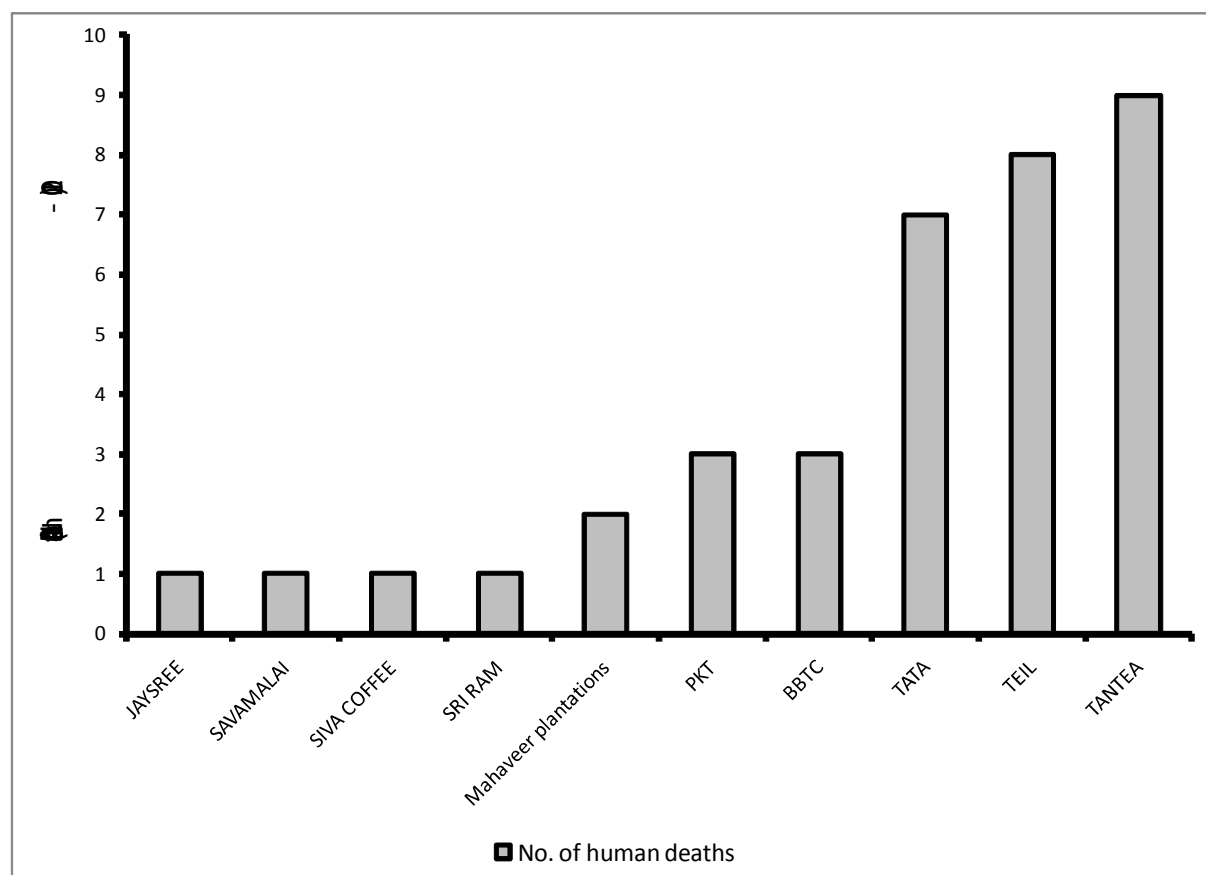
Map 2: Location of Ryan Division and Chinnakallar part of Lawson division in relation to portions of Anamalai Tiger Reserve (in grey) and surrounding Protected areas.

### Human deaths due to elephants

Frequent interactions during unexpected encounters between elephants and people living in TANTEA led to incidents of human-elephant conflicts causing human fatalities besides damage to property. In the last 16 years (1994 – 2011) on average 2- 3 people (total number of human fatalities 36) died due to elephants in accidental encounters on the Valparai plateau. Compilation of records of human deaths due to elephants over the last 16 years shows that among the plantation companies on the Valparai plateau, TANTEA currently has seen the maximum number of deaths (**Figure 1**). This indicates that TANTEA is clearly one of the sensitive areas for human-elephant conflicts and one of the most important companies to focus on regarding steps to avoid such deaths in future.

**Of the human deaths due to elephants, 9 deaths occurred in TANTEA, particularly in Ryan Division. Although this division occupies less than 2% of the total plantation area of Valparai plateau, 25% of the human deaths have occurred in the Ryan Division (including the recent deaths in Periyakallar area).** The details of the nine people who died due to elephants are presented in **Table 1**.

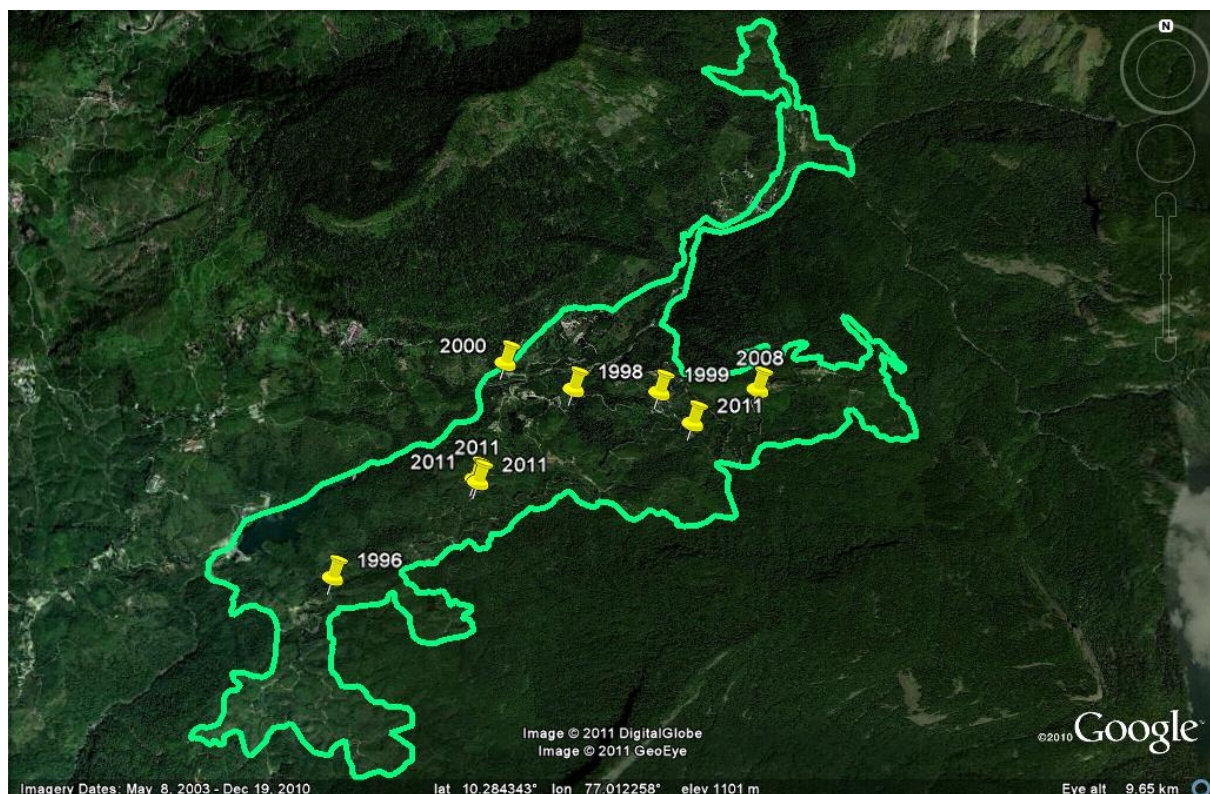
All human deaths in TANTEA occurred in the remote areas, particularly in the Periyakallar part of Ryan Division (**Map 3**). Most of the deaths occurred on estate roads due to people being unaware of the presence of elephants while walking from the nearest bus stop towards their homes in the colonies. Of the total nine human deaths between 1994–2011 eight people (89%) died between October and March in the remote areas of TANTEA.



*Figure 1: Human deaths due to elephants in estates of different companies on the Valparai plateau.*

**Table 1: Details of people who died due to elephants in TANTEA area (1994 – 2011).**

Year	Date	Name of the person	Occupation	Sex	Age
1996	21-01-1996	Thavisikannu Thevar	Contract worker	Female	65
1998	20-06-1998	Vijayakumar	Casual worker	Male	23
1999	29-01-1999	Yellamal	Retired worker	Female	53
2000	05-02-2000	Narayanaswamy	Permanent worker	Male	55
2008	12-12-2008	Puttusamy (nickname)	Estate woker	Male	55
2011	08-02-2011	Selvatai	Estate worker	Female	52
2011	08-02-2011	Kadija	Estate worker	Female	60
2011	08-02-2011	Parameswari	Estate worker	Female	50
2011	06-03-2011	Annappan	Estate worker	Male	51



*Map 3: Locations of the nine human deaths due to elephants in TANTEA area. Note that all the deaths are south of the Kallar River in the Ryan Division.*

### **Present situation and field assessment**

In 2011, the issue of human-elephant conflict in TANTEA came to a head due to the unfortunate incidents involving death of 3 women workers (Selvatai, Kadija, and Parameswari) on 8 February 2011 and a man (Annappan) in 6 March 2011. Following this, along with the Tamil Nadu Forest Department, we carried out site visit on 13 February 2011 and interviews with workers and staff of TANTEA to assess the situation and identify possible remedial and mitigatory measures. Other meetings were held with Chief Wildlife Warden and senior officers of TANTEA and Anamalai Tiger Reserve on 10 March 2011 at TANTEA, Valparai, and with ATR officers on 12 March 2011 to discuss various options.

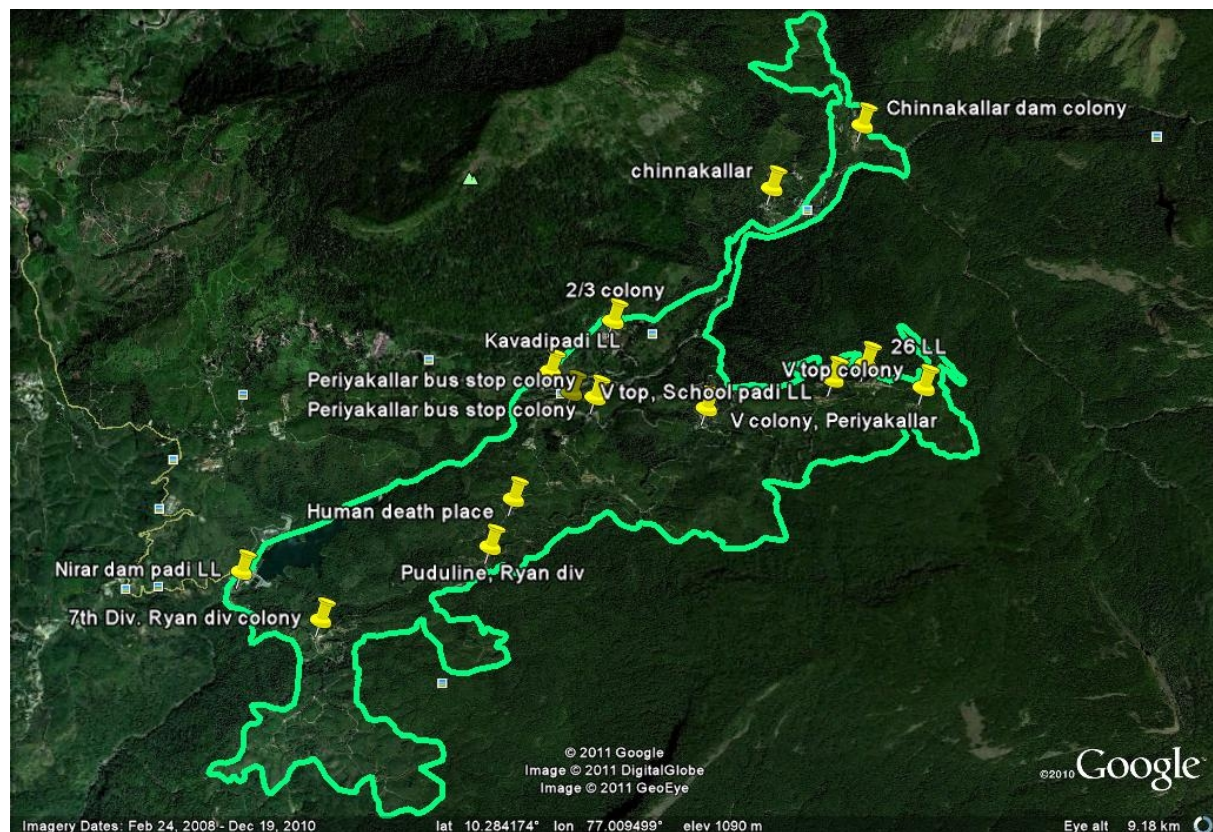


### Critical and sensitive colonies in TANTEA

TANTEA, which borders Anamalai Tiger Reserve, occupies highest priority in terms of human-elephant conflicts and frequency of elephant movements. Human colonies have been situated in remote areas with no accessible transportation and other basic facilities and are highly prone to human-elephant conflicts. Many houses in these colonies have been occupied by fewer people with minimum basic facilities. Toilets are inadequate and located separately from labour lines, often without lighting or direct water supply, bringing additional risk when people move between housing and toilets, especially at night.

A list of colonies has been given in the **Table 2** that have been identified as critical human settlements and marked on the map (**Map 4**). In these sensitive areas marked on the map, people in existing colonies need to be moved to better colonies along the main road (in Lawson Division or in 2/3 Colony and Periyakallar Bus Stop Colony) for their safety. The tea fields in the area need to be abandoned and forest patches protected for elephants to facilitate their movement across this corridor through the Ryan Division between forest areas of the Anamalai Tiger Reserve.

The colonies listed and people in these colonies need to be relocated to other vacant houses along the main road, north of the Kallar river, and other sites that are not located in remote fields but with access to public transportation services. Colonies should not be located or constructed next to forest patches or riverine vegetation areas in TANTEA. During a field survey along with the forest department staff, a number of vacant line units in some of the better colonies along the main road from Valparai to Nirar Dam passing through Lawson Division were noted.



Map 4: Colonies in TANTEA Ryan Division mentioned in report.

**Table 2: List of some of critical human colonies in TANTEA.**

<b>No.</b>	<b>Name of the colony</b>	<b>Place</b>	<b>Division</b>
1	Upper Nirar dam colony	Chinnakallar	Lawson
2	V Colony	Periyakallar	Ryan
3	V top colony	Periyakallar	Ryan
4	Schoolpadi labour line	Periyakallar	Ryan
5	V bus stop labour line	Periyakallar	Ryan
6	26 labour line in V top	Periyakallar	Ryan
7	V top colony	Periyakallar	Ryan
8	Lower Nirar dam padi	Periyakallar	Ryan
9	Sudukadumedu labour line	Periyakallar	Ryan
10	7 <sup>th</sup> Division Ryan	7 <sup>th</sup> division	Ryan
11	Puduline padi	Puduline	Ryan
12	Ryan Division padi LL	Ryan	Ryan
13	P muster role labour line	P muster	Ryan

**NOTE:** Each **colony** is composed of one or more **labour lines** and each labour line includes several housing **units**.

## RECOMMENDATIONS

### *Suggested immediate steps*

- 1) Relocation of critical households listed in Table 1 to existing housing colonies such as 2/3 colony, Periyakallar bus stop colony, and colonies in the Lawson division along the main Valparai – Chinnakallar main road. Public transport should be easily accessible to the people.
- 2) If new colonies are planned to accommodate relocated people, they need to be built more than 100 m away from forest patches or riverine habitats. A proper site assessment from the point of view of human safety and environmental impact should be carried out prior to any such construction.
- 3) Each house should be provided with attached toilets with adequate water supply and lighting for the safety of the people. Where ever necessary, these colonies can be further safeguarded with solar power fences. These, however should not be deployed on the movement routes as an obstruction to the movement of elephants.
- 4) The following fields in TANTEA area need to be closed for operations and brought within the management of the Anamalai Tiger Reserve:
  1. **Ryan Division:** 1, 4, 5, 15, 16, 18, 20, 24, 25, 26, 30, 31, 32, 33, 35, 36, 40, 41, 42, 44, 45, 46, 47, 48, 49, and 50.
  2. **Lawson Division:** Field nos. 36 and 37 in Chinnakallar area, and *Eucalyptus* patch on slope above Nirar Dam and on Vellamalai Top hill area.



- 5) Permanent elephant watchers need to be hired to locate elephant herds within plantations of both Ryan and Lawson divisions and provide information for safety of workers and scheduling of tea field operations. The workers should be allocated work at least 50 m away from the elephants in the vicinity (Kumar and Singh 2010).
- 6) If elephants are noted in any tea field, workers should not be allocated work in that field for that day. Instead, workers should be shifted to other fields devoid of elephants or in safer locations (at least 50 m away). The field where elephants are present may be worked in after a couple of days when elephants have moved away.
- 7) The driving / chasing of elephants using trucks from tea fields that are away from residential places should be strictly avoided. Measures to chase elephants should be deployed only around residential areas for safety of people. Chasing from fields far away from residences may be ineffective and cause unnecessary stress on elephants and deprive them their basic needs of food and water.

#### *Longer-term steps required*

- 1) Native vegetation forest connectivity need to be established between forest patches in tea fields of Ryan division and as well as to the surrounding forest areas of Anamalai Tiger Reserve.
- 2) Degraded forest fragments and riverine patches between the Anamalai Tiger Reserve and Kallar river need to be restored with native vegetation in order to facilitate free movement of elephants thereby reducing human-elephant conflicts in TANTEA.
- 3) The Tamil Nadu Forest Department should sincerely **consider a phase-wise closure of Ryan division** in consultation with workers as part of the process. This will further strengthen the safety of people as well as elephant conservation as it lies within the Anamalai Tiger Reserve. During the field survey and discussions, it was expressed that this may be a feasible solution as there are many vacancies in other divisions of TANTEA due to widespread labour shortage.
- 4) Implementation of elephant conflict mitigation steps must consider the pros and cons of various options and select those appropriate for the Valparai landscape based on scientific research (Kumar *et al.* 2004, Fernando *et al.* 2008, Kumar 2010).

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